



IN A PLASTIC BAG, CLEAN WATER FOR THE WORLD'S POOR

EVERY DAY, 10,000 CHILDREN die from cholera and other waterborne diseases, according to the U.N. Frank Husson, founder of Solar Solutions LLC, thinks he can cut this toll with a low-tech, low-cost plastic pouch that uses the sun's heat to pasteurize water and rid it of harmful bacteria, viruses, and parasites.

In the past, relief organizations have built solar-thermal systems out of metal and glass to purify water. But no one has created a solar-powered pasteurizer cheap enough to deploy widely in very poor areas. With that in mind, Husson's San Diego startup designed AquaPak out of black polyethylene, which is widely used in food packaging, and bubble wrap. Husson says the bags could be made in most Third World countries for as little as \$1 each. That's roughly 10% of the cost of the next-best type of solar purifier, says Jay Burch, a solar specialist at the National Renewable Energy Laboratory.

NREL is testing the sack's plastic materials, which are key to its "goof-proof" design, as Husson puts it. When the 15-inch-a-side pack is filled with water and placed on the ground, sunshine warms the water while air-filled bubbles keep the accumulating heat from escaping. In tests, it took 90 minutes to heat the 1.2-gallon AquaPak to 158F. At that temperature, practically all pathogens are cooked after just six minutes.

Husson, who is funding the venture himself, now aims to share the AquaPak design with Third World entrepreneurs, the U.N., and other relief agencies. *Adam Aston*